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² The parties submitted 1,148 exhibits that span thousands of pages, and 25 witnesses testified.

the evidence, testimony, and oral arguments presented during the trial, along with post-trial submissions³ and the applicable law, the Court entered its initial findings of fact and conclusions of law pursuant to Federal Rule of Civil Procedure 52(a). The judgment was appealed. The Fifth Circuit vacated the Court's judgment and remanded the case for the determination of a new judgment as consistent with the Circuit's opinion. On April 26, 2017, the Court issued revised findings of fact and conclusions of law, along with a revised judgment. The revised judgment was appealed. The Fifth Circuit vacated the Court's revised judgment and remanded the case for determination of a new judgment based on limited additional findings in compliance with the Circuit's opinion. Accordingly, the Court issues the following second revised findings of fact and conclusions of law, as consistent with the instructions on remand from the Fifth Circuit following the vacatur of the Court's revised judgment. Any finding of fact that should be construed as a conclusion of law is hereby adopted as such. Any conclusion of law that should be construed as a finding of fact is hereby adopted as such.

³ The post-trial submissions considered by the Court in issuing its initial findings of fact and conclusions of law included the plaintiffs' and the defendants' original proposed findings of fact and conclusions of law, which are 455 pages and 361 pages in length, respectively.

I. BACKGROUND

On December 13, 2010, Plaintiffs Environment Texas Citizen Lobby, Inc. (“Environment Texas”) and Sierra Club (“Sierra Club”) (collectively, “Plaintiffs”) brought suit under the citizen suit provision of the federal Clean Air Act (the “CAA”), 42 U.S.C. § 7604, against Defendants ExxonMobil Corporation, ExxonMobil Chemical Company, and ExxonMobil Refining and Supply Company (collectively, “Exxon”). The case concerns Exxon’s operation of a refinery, olefins plant, and chemical plant located in Baytown, Texas (the “Complex”), which is a suburb of Houston and within Harris County. Plaintiffs seek a declaratory judgment, penalties,⁴ injunctive relief, and appointment of a special master for events at the Complex involving unauthorized air emissions or deviations from one of the Complex’s air permits, during a period spanning from October 14, 2005, to September 3, 2013.

On December 17, 2014, the Court issued its initial findings of fact and conclusions of law.⁵ Plaintiffs appealed the decision to the Fifth Circuit. On May 27, 2016, the Fifth Circuit issued an opinion vacating the Court’s judgment and

⁴ Plaintiffs originally requested \$1,023,845,000 in penalties, but later reduced their request to \$642,697,500 to account for overlapping violations alleged in the various counts of the complaint. On the first remand to this Court, Plaintiffs sought \$40,815,618 in penalties. Plaintiffs now seek \$19,951,278 in penalties, based on the Court’s penalty assessment from the revised judgment.

⁵ *Findings of Fact & Conclusions of Law*, Document No. 225.

remanding for assessment of penalties based on the violations actionable as consistent with its opinion.⁶

On April 26, 2017, the Court issued revised findings of fact and conclusions of law and a revised judgment.⁷ Exxon appealed the decision to the Fifth Circuit. On July 29, 2020, the Fifth Circuit vacated the Court's revised judgment and remanded for the limited purpose of allowing the Court to make additional findings as to: (1) traceability; (2) Exxon's Act of God affirmative defense; and (3) penalties.⁸

On August 5, 2020, the Court ordered the parties to submit second revised proposed finding of facts and conclusions of law consistent with limited remand from the Fifth Circuit. On October 19, 2020, the parties submitted their proposals. Having considered the Fifth Circuit's opinion, the parties' second revised proposals,⁹ the Court amends its revised conclusions of law, as follows, as to traceability, the Act of God defense, and its judgment on the amount of penalties to be assessed.¹⁰

⁶ *Env't Tex. Citizen Lobby, Inc. v. ExxonMobil Corp.*, 824 F.3d 507 (5th Cir. 2016).

⁷ *Revised Findings of Fact and Conclusions of Law*, Document No. 257; *Final Judgment*, Document No. 258.

⁸ *Env't Tex. Citizen Lobby, Inc. v. ExxonMobil Corp.*, 968 F.3d 357, 374–75 (5th Cir. 2020) (“*ETCL II*”).

⁹ On limited remand, the Court considered the parties' second revised proposed findings of fact and conclusions of law and, where relevant, the parties initial proposed findings of fact and conclusions of law and submissions from the first remand to this Court.

¹⁰ To the extent the below revised findings do not replace or amend the Court's Revised Findings of Fact and Conclusions of Law entered on April 26, 2017, the Court's prior findings and conclusions remain fully in effect. Specifically, the Court reincorporates

III. CONCLUSIONS OF LAW

A. Standing

1. “Congress granted ‘any person’ the right to sue under the Clean Air Act.” *ETCL II*, 968 F.3d at 364 (quoting 42 U.S.C. § 7604(a)). The term “person” includes organizations, such as corporations and partnerships. 42 U.S.C. § 7602(e). An organization “has standing to bring suit on behalf of its members when: (1) its members would otherwise have standing to sue in their own right; (2) the interests it seeks to protect are germane to the organization’s purpose; and (3) neither the claim asserted nor the relief requested requires the participation of individual members.” *Texans United for a Safe Econ. Educ. Fund v. Crown Cent. Petroleum Corp.*, 207 F.3d 789, 792 (5th Cir. 2000). Exxon does not contest the second and third requirements, and the Court finds these requirements are met. At issue is the first requirement.

2. In order for a member to have standing to sue in his or her own right, (1) he or she must have suffered an actual or threatened injury, (2) that is fairly traceable to the defendant’s action, and (3) the injury must likely be redressed if the plaintiff prevails in the lawsuit. *Id.* Furthermore, “a plaintiff needs standing for each

by reference all the Findings of Fact from the Court’s Revised Findings of Fact and Conclusions of Law entered on April 26, 2017. *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶¶ II.1–II.25.

violation for which it seeks a penalty.” *ETCL II*, 968 F.3d at 366. The plaintiff bears the burden to prove the requirements for standing by a preponderance of the evidence if the case is tried. *Id.* at 367; *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992). When determining whether the plaintiff has met its burden, the “factfinder may rely on circumstantial evidence and draw reasonable inferences from the evidence.” *ETCL II*, 968 F.3d at 367 (citing *Friends of the Earth v. Gaston Copper Recycling Corp.*, 204 F.3d 149, 163 (4th Cir. 2000)). The Fifth Circuit determined the Court correctly found Plaintiffs established injury-in-fact and redressability. Therefore, the Court reincorporates its prior conclusions of law as to injury-in-fact and redressability.¹¹ The Court revises its conclusions of law to address traceability for each violation.

a. Injury-in-Fact¹²

b. Traceability

5. On limited remand, Plaintiffs contend they have established traceability as to 9,803 days of violations. In tabulating this number, Plaintiffs voluntarily

¹¹ *Revised Findings of Fact and Conclusions of Law*, Document No. 257 at 30–31, 34–35.

¹² Because the Court reincorporates by reference its previous conclusions of law as to injury-in-fact, ¶¶ III.3–III.4 from the Court’s Revised Findings of Fact and Conclusions of Law is omitted in the foregoing analysis.

exclude any violations involving the release of one pound or less of a pollutant.¹³

Exxon contends Plaintiffs have only produced evidence to establish traceability as to five events resulting in forty days of violations.¹⁴

6. So long as there is a fairly traceable connection between a plaintiff's injury and the defendant's violation, the traceability requirement of standing is satisfied. *Comer v. Murphy Oil USA*, 585 F.3d 855, 864 (5th Cir. 2009). To confer standing, the plaintiff's injury does not have to be linked to exact dates that the defendant's violations occurred, and the plaintiff does not have to "show to a scientific certainty that defendant's [emissions], and defendant's [emissions] alone, caused the precise harm suffered by the plaintiffs." *Texans United*, 207 F.3d at 793; *Save Our Cmty.*, 971 F.2d at 1161 (internal quotation marks omitted); *see Tex. Campaign for the Env't v. Lower Colo. River Auth.*, No. H-11-791, 2012 WL 1067211, at *4–5 (S.D. Tex. Mar. 28, 2012) (Miller, J.). Rather, to establish traceability, plaintiffs must show: (1) "that each violation in support of their claims

¹³ *Plaintiffs' Notice of Filing Proposed Findings of Fact and Conclusions of Law on Limited Remand*, Document No. 298, Attachment 1 at 21 (*Plaintiffs' Proposed Findings of Fact and Conclusions of Law on Limited Remand*) [hereinafter *Plaintiffs' Proposed FFCL on Limited Remand*].

¹⁴ The Court's previous definition of a "violation" and "days of violations" was undisturbed by the Circuit on remand. Accordingly, the Court uses a pollutant-by-pollutant approach for each violation, based on a 24-hour day, as discussed in the Court's Revised Findings of Facts and Conclusions of Law. *See Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶¶ III.25–III.26.

causes or contributes to the kinds of injuries they allege[;]” and (2) “the existence of a specific geographic or other causative nexus such that the violation could have affected their members.” *ETCL II*, 968 F.3d at 369–70 (internal quotations marks and citations omitted).

6a. A violation will satisfy the first prong for traceability if the violation (1) “could cause or contribute to flaring, smoke, or haze”; “(2) released pollutants with chemical odors; or (3) released pollutants that cause respiratory or allergy-like symptoms.” *Id.* at 370–71. For the second prong, the geographic nexus inquiry, the plaintiff must show each violation resulted in emissions of pollutants that could have reached beyond the Complex to affect Plaintiffs’ members. *Id.* This showing is “satisfied if the emission (i) violated a nonzero emissions standard, (ii) had to be reported under Texas regulations, or (iii) is otherwise proven to be of sufficient magnitude to reach Baytown neighborhoods outside the Exxon complex in quantities sufficient to cause chemical odors, allergy-like symptoms, or respiratory symptoms.”¹⁵ *Id.* However, the Fifth Circuit made it clear, “the geographic nexus

¹⁵ Events that must be reported under Texas regulations include “[a]ny emissions event that in any 24-hour period, results in an unauthorized emission from any emissions point equal to or in excessive the reportable quantity.” 30 Tex. Admin. Code § 101.1(88); see 30 Tex. Admin. Code § 101.201(a); *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ II.5. At trial, Plaintiffs did not assert that any recordable emission events were improperly characterized and should have been treated as reportable emissions events. Further, it was undisputed that Exxon complied with the reporting and recording requirements, as shown in the stipulated spreadsheets showing the Events and Deviations. See *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ II.5. Therefore, the Court considers only violations listed as Reportable Events when

inquiry is unnecessary for any violation that could have caused or contributed to flaring, smoke, or haze, even if the emission was of a small magnitude.” *Id.* at 371. As such, traceability is established for any violation the Plaintiffs demonstrate could have caused or contributed to flaring, smoke, or haze. *See id.*

6b. Because demonstrating a violation could cause or contribute to flaring, smoke, or haze is enough to establish traceability, the Court first addresses violations within that category. The Court then turns to the remaining violations to identify any that Plaintiffs show resulted in emissions of pollutants that could cause or contribute to chemical odors or allergy-like or respiratory symptoms, and conducts the applicable geographic nexus inquiry for those violations.¹⁶

i. Flaring, Smoke, and Haze Violations

6c. The evidentiary support cited by Plaintiffs to establish traceability as to violations that could cause or contribute to flaring, smoke, and haze includes: (1) Plaintiffs’ Exhibits 1A through 7E and Exhibits 587 through 594; and (2) testimony of various witnesses presented at trial. On the limited remand, Plaintiffs also

determining whether the geographic nexus inquiry is satisfied based on required reporting under Texas regulations.

¹⁶ The Court notes, when calculating its totals, it accounted for violations where traceability could be established in multiple ways (for example, if the Court found the violation caused or contributed to flaring, it did not then consider whether the same violation also caused or contributed to smoke or a chemical odor). The Court also excluded any violation that involved a pound or less of emitted pollutants based on Plaintiffs’ voluntary exclusion on limited remand.

submitted resorted versions of Plaintiffs' Exhibits 587, 588, and 591 through 594 (the "Traceability Spreadsheets").¹⁷

6d. As to flaring violations, Plaintiffs contend traceability is established for any violation that the emission point occurred at a flare. Plaintiffs elicited testimony at trial to show flaring occurs when gasses combust or burn at a flare stack, resulting

¹⁷ *Plaintiffs' Notice of Filing Proposed Findings of Fact and Conclusions of Law on Limited Remand*, Document No. 297, Exhibit 1 (*Description of Revised Versions of Plaintiffs' Exhibits 587–88 & 591–94*) [hereinafter *Description of the Traceability Spreadsheets*], Exhibits 2–7 (*Revised Plaintiffs' Exhibits 587–88, 591–94*) [hereinafter *Traceability Spreadsheets*]. Plaintiffs do not submit resorted versions of 589 and 590, as they pertain to Count II violations, which are duplicative of violations listed for the refinery in the resorted versions of Exhibits 587 and 588. *Plaintiffs' Proposed FFCL on Limited Remand*, *supra* note 13, at 6 n.1. The Traceability Spreadsheets show how repeated violations of specific emissions were identified and calculated and includes an additional column with traceability codes for each violation for which Plaintiffs contend they have established traceability. The spreadsheets were submitted to the Court in native format. Exxon objects to the Traceability Spreadsheets on the bases they: (1) provide new evidence not previously submitted at trial; (2) are not admissible as summaries; (3) are unreliable; and (4) do not comport with opinion evidence under Federal Rules of Evidence 701 and 702. Plaintiffs contend the Traceability Spreadsheets are only to be considered as demonstrative aids and do not provide any new evidence. The Court may consider pedagogical aids used only for demonstrative purposes to clarify or amplify a party's argument based on evidence already admitted into the record. *See United States v. Buck*, 324 F.3d 786, 790 (5th Cir. 2003). Having carefully reviewed the Traceability Spreadsheets and applicable law, the Court finds the Traceability Spreadsheets are only being used by Plaintiffs to demonstrate their contention as to those violations for which the evidence presented at trial establishes traceability. Accordingly, The ExxonMobil Defendants' Objections to Plaintiffs' Revised Exhibits Filed With Proposed Findings of Fact and Conclusions of Law (Document No. 300) are overruled. The Court will consider the Traceability Spreadsheets only as a demonstrative aid and not evidence. As such, any information presented in the Traceability Spreadsheets that is not supported by evidence presented at trial will be disregarded.

in flame coming out of the tip of the flare stack.¹⁸ Plaintiffs do not provide any testimony or other support to show that every violation where the emission point was a flare could have caused or contributed to flaring. For example, Plaintiffs assert traceability is established as a flaring violation when two pilot outages occurred on flare stack 14 resulting in the release of two pounds of hydrogen sulfide from flare stack 14.¹⁹ Plaintiffs' expert, Dr. Ranajit Sahu ("Dr. Sahu"), testified that if the pilot flames are not lit, there can be no combustion in the flare.²⁰ Therefore, while such violations may have occurred at a flare stack or involved a flare stack, it does not show that the violation caused or contributed to flaring.

6e. At trial, Plaintiffs' witness, Kevin Bowers, testified that when a compressor on a process unit at a refinery or chemical plant trips or shuts down, it leads to flaring.²¹ Thus, the Court finds traceability has been established for any violation where the cause describes flaring or the failure of a compressor and the emissions point occurred at a flare stack, as the violation could have caused or contributed to flaring. Having reviewed the Events and Deviations for said

¹⁸ *Trial Transcript* at 3-26:2–12.

¹⁹ *Plaintiffs' Notice of Filing Proposed Findings of Fact and Conclusions of Law on Limited Remand*, Document No. 297, Exhibit 3 at 10, line 252 (*PX 587 – Count I – Refinery Steers Events – Sorted by Pollutant – Totals Added – Traceability Codes Added*).

²⁰ *Trial Transcript* at 5-104:10–12.

²¹ *Trial Transcript* at 4-136:15–21.

violations, the Court finds the evidence supports a finding of traceability as to the following violations that could have caused or contributed to flaring:

	Category	Violations	Days of violations
Count I	Refinery STEERS	55	99
	Refinery Recordable	909	1,017
Count II	Olefins STEERS	165	248
	Olefins Recordable	99	115
	Chemical Plant STEERS	76	93
	Chemical Plant Recordable	189	214
Count III	Olefins & Chemical Plant STEERS	10	15
	Totals	1503	1801

6f. As to smoke violations, Plaintiffs assert they have established traceability for any violation that involves opacity or the emission of particulate matter. At trial, Jeffrey Kovacs (“Kovacs”), an Exxon employee working in the Security, Safety, Health, and Environmental Department,²² testified “Opacity is basically smoke . . . from a fire.”²³ Kovacs further explained, “[o]pacity is an indirect measurement from a flare for particulate matter”²⁴ and the higher the opacity, the greater the particulate matter released.²⁵

²² *Trial Transcript* at 2-194:13–19.

²³ *Trial Transcript* at 3-16:2.

²⁴ *Trial Transcript* at 3-16:4–5.

²⁵ *Trial Transcript* at 3-17:12–14.

6g. Considering the testimony presented by Kovacs and the descriptions provided in Plaintiffs' exhibits, the Court finds that traceability has been established for any violation where the cause describes smoke, opacity, or smoldering, or indicates an opacity percentage or emission of particulate matter. Having reviewed the Events and Deviations for said violations, the Court finds Plaintiffs have established traceability as to the following violations that could have caused or contributed to smoke:

	Category	Violations	Days of violations
Count I	Refinery STEERS	40	134
	Refinery Recordable	57	191
Count II	Olefins STEERS	16	42
	Olefins Recordable	108	166
	Chemical Plant STEERS	3	3
	Chemical Plant Recordable	7	8
Count VI	Refinery, Olefins & Chemical Plant	42	44
	Totals	273	588

6h. As to haze violations, Plaintiffs contend traceability is established for any pollutant that could contribute to ground-level ozone, or smog, because ozone is the same as visible haze.²⁶ Plaintiffs cite to case law from outside the Fifth Circuit

²⁶ While the Fifth Circuit did not specifically define what constitutes "haze," testimony and other uses of the term suggest haze is a visibility impairment produced by a variety of pollutants. *See e.g., Trial Transcript* at 1-202:2-15 (describing how haze coming from the Complex could be seen from the bridge going over the Houston Ship Channel); *Sierra Club v. EPA*, 939 F.3d 649, 653 n.3 (5th Cir. 2019) (discussing regional haze as a

to support this proposition, as well as evidence in the record that shows various pollutants, such as nitrogen oxides and volatile organic compounds (“VOCs”), contribute to the creation of ground-level ozone.

6i. With respect to the case law provided by Plaintiffs, findings from another court about facts in an unrelated matter does not constitute evidence from which this Court can determine traceability as to violations at the Complex. Plaintiffs’ expert, Dr. Edward Brooks (“Dr. Brooks”), testified that “[o]zone is formed from sunlight, oxides and nitrogen, certain organic compounds, and . . . probably formaldehyde and nitrous acid. It’s a very complicated air quality chemistry that goes on. . . . [Ozone] is not a primary pollutant. It’s a secondary that requires these inputs. . . . [T]he predominate predictor of ozone formation in Houston was from these highly reactive volatile organic compounds produced in refineries and other -- point source emissions.”²⁷ Dr. Brooks further testified ozone is a component of urban smog.²⁸ However, Dr. Brooks did not testify what amount of emissions of these pollutants and what combination of these pollutants could

visibility impairment caused by multiple sources and activities that are located across a broad geographical area).

²⁷ *Trial Transcript* at 7-143:16–25 to 7-144:1.

²⁸ *Trial Transcript* at 7-147:19–21.

contribute to ground-level ozone that would become visible. Dr. Brooks also did not testify that smog or ozone equate to haze.

6j. Plaintiffs further cite to evidence containing information from the EPA and the Agency for Toxic Substances & Disease Registry as to various pollutants, such as nitrogen oxides (“NO_x”), volatile organic compounds (“VOCs”) and carbon monoxide (“CO”).²⁹ Like Dr. Brook’s testimony, these exhibits link these pollutants to the formation of ground-level ozone and do not reference haze. Thus, the Court finds Plaintiffs fail to establish traceability as to any violations that could have caused or contributed to haze based on the evidence presented about ozone.³⁰

ii. Violations Involving Chemical Odors

6k. Plaintiffs contend they produced sufficient evidence to establish traceability as to 1,826 days of violations resulting from pollutants that cause or

²⁹ *Plaintiffs’ Exhibits* 520–22, 527.

³⁰ The Court notes that Kingman, Aguirre, and Sprayberry all testified as to seeing haze coming from the Complex. *See Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶¶ II.19–II.20, II.22. Plaintiffs also questioned Kovacs about a March 2011 incident where a caller complained about haze over the Complex. *Trial Transcript* at 3-12:22–25; 3-13:1–8. It is undisputed that such testimony, when linked to violations in the stipulated spreadsheets, is sufficient to establish traceability for those violations. However, only the testimony of Sprayberry was linked to specific violations. *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ II.22. The Court does not include those violations in its traceability analysis as to violations that cause or contribute to haze, because the two violations Sprayberry testified to also caused or contributed to flaring. Thus, traceability has already been established and the two violations have already been included in the calculated days of violations for flaring.

contribute to chemical odors and meet the geographic nexus inquiry.³¹ Exxon contends Plaintiffs have not established any violation can be traced outside the Complex in sufficient quantities to affect Plaintiffs' members.

6m. At trial, Plaintiffs produced evidence to show the following pollutants cause or contribute to chemical odors: (1) ammonia;³² (2) benzene;³³ (3) carbon disulfide;³⁴ (4) ethylbenzene;³⁵ (5) hydrogen chloride;³⁶ (6) hydrogen sulfide;³⁷ (7) sulfur dioxide;³⁸ (8) toluene;³⁹ and (9) xylene⁴⁰ (collectively, the "Odor Pollutants"). Considering this evidence, the Court finds any violation where one of the Odor

³¹ This number is the sum of Plaintiffs' calculations of violations that cause or contributed to chemical odors based on: 11 days of violations for nonzero emissions standard, 1,706 days of violations that involved a reportable quantity of pollutant, and 109 days of violations that were of a sufficient magnitude to reach beyond the Complex. *Plaintiffs' Proposed FFCL on Limited Remand*, *supra* note 13, at 16–20. The Court notes this calculation does not take into consideration prior days of violations that overlap with other traceability categories.

³² *Trial Transcript* at 11-60:21–21 to 11-62:4.

³³ *Plaintiffs' Exhibits* 541–43.

³⁴ *Plaintiffs' Exhibit* 533.

³⁵ *Plaintiffs' Exhibits* 544, 546.

³⁶ *Plaintiffs' Exhibit* 535.

³⁷ *Plaintiffs' Exhibit* 544.

³⁸ *Plaintiffs' Exhibit* 526; *Trial Transcript* at 7-76:18–22.

³⁹ *Plaintiffs' Exhibit* 548–50.

⁴⁰ *Plaintiffs' Exhibit* 552.

Pollutants was emitted caused or contributed to a chemical odor. The Court therefore turns to whether the violations where the Odor Pollutants were emitted satisfy the geographic nexus test by having exceeded a nonzero emissions limit, was required to be reported under Texas regulations, or was proven to be of a sufficient magnitude reach Baytown neighborhoods outside the Complex in quantities that would cause chemical odors. *See ETCL II*, 968 F.3d at 370–71.

6n. Each of Plaintiffs' Exhibits 591 through 594 and the corresponding Traceability Spreadsheets include is a column that indicates the reported emissions limit or permit limit for each pollutant.⁴¹ When these columns provide a number that is greater than zero, this is what is called a nonzero emissions standard. For any violation where one of the Odor Pollutants was emitted in an amount greater than the indicated nonzero emissions limit, the Court finds traceability has been established. Having reviewed the Events and Deviations for said violations, the Court finds Plaintiffs have established standing as to eleven violations, totaling eleven days of violations.⁴²

⁴¹ The Court has reviewed the Traceability Spreadsheets in comparison to Plaintiffs' stipulated spreadsheets from trial and those resorted and produced from the first remand and the Court determines the columns and amounts indicating the emissions limits are the same.

⁴² *See Plaintiffs' Exhibits 592, 594; Traceability Spreadsheets, supra* note 17, Exhibits 5, 7.

6p. Plaintiffs' exhibits also provide a column that indicates the amount of the pollutant that was emitted in pounds per hour. Texas law provides the following "reportable quantities" for each of the Odor Pollutants:

- Ammonia – 100 lbs.;
- Benzene – 10 lbs.;
- Carbon disulfide – 100 lbs.;
- Ethylbenzene – 100 lbs.;
- Hydrogen Chloride – 5,000 lbs.;
- Hydrogen Sulfide – 100 lbs.;
- Sulfur Dioxide – 500 lbs.;
- Toluene – 100 lbs.; and
- Xylene – 100 lbs.

See 30 Tex. Admin. Code § 101.1(89)(A)(i), (ii); 40 C.F.R. Part 302, Table 302.4; 40 C.F.R. Part 355, App. A. If the violation includes a mixture of air pollutants where the relative amount of each individual pollutant is unknown, the reportable quantity is any amount of the mixture that equals or exceeds the reportable quantity for any single pollutant that is present in the mixture. 30 Tex. Admin. Code § 101.1(89)(B)(ii).⁴³ When a violation shows the emitted amount of one of the Odor

⁴³ The Court notes that this part of the statute becomes relevant for certain violations that show several different pollutants, but do not provide specific emissions in pounds for each pollutant. For example, in Plaintiffs' Exhibit 587 and Traceability Spreadsheet Exhibit 2, STEERS event 110887 shows a release of 5,357 pounds of various pollutants, including ethylbenzene, toluene, and xylene. Though the specific emissions as to each of these Odor Pollutants is not provided, under Texas law, the reportable quantity would be equal to any single pollutant present. Thus, for this violation the reportable quantity is 100 pounds.

Pollutants exceeds the reportable quantity for that pollutant and was reported,⁴⁴ the Court finds traceability has been established. Having reviewed the Events and Deviations for said violations, the Court finds Plaintiffs have established standing as to 76 violations, totaling 354 days of violations.⁴⁵

6q. Lastly, Plaintiffs contend traceability is established as to 109 violations that were of a sufficient magnitude to reach Baytown neighborhoods outside the Complex in sufficient quantities to cause chemical odors.⁴⁶ Exxon contends that Plaintiffs have not shown any of the pollutants from the violations exceeded industry standards or were sufficient in magnitude to affect Plaintiffs' members outside the Complex.

6r. Plaintiffs point to the testimony of Mr. Cabe and Dr. Fraiser about air dispersion analyses that show in at least 144 instances, the events caused an offsite pollutant concentration in excess of air comparison values ("ACVs").⁴⁷ ACVs

⁴⁴ See *supra* ¶ III.6 n.15.

⁴⁵ The breakdown for each section at the Complex is as follows: (1) 66 violations, totaling 320 days of violations from refinery Reportable Events; (2) six violations, totaling 28 days of violations from the olefins plant Reportable Events; and (3) four violations, totaling six days of violations from the chemical plant Reportable Events. See *Plaintiffs' Exhibits* 587, 591, 593; *Traceability Spreadsheets*, *supra* note 17, Exhibits 2, 4, 6.

⁴⁶ Plaintiffs note that several of the 109 violations may overlap with violations that traceability has already been established for in other categories. See *Plaintiffs' Proposed FFCL on Limited Remand*, *supra* note 13, at 20–21.

⁴⁷ *Trial Transcript* at 8-152:9–13, 8-155:2–12, 8-192:22 to 8-193:1.

include the National Ambient Air Quality Standards (“NAAQS”), which are federal standards set by the EPA, effects screening levels (“ESLs”) set by Texas Commission on Environmental Quality, air monitoring comparison values, and a reference evaluation value.⁴⁸ Mr. Cabe testified none of the NAAQS were exceeded for the violations which he conducted air dispersion modeling and that exceeding an air comparison value in a model requires additional analysis by a toxicologist to determine if public health or safety was in danger.⁴⁹ Furthermore, Dr. Fraiser, a toxicologist, discussed in depth several of the violations that had been modeled and found that even in situations where the offsite pollutant exceeded ACVs, it would not have contributed to harmful pollution.⁵⁰ Plaintiffs do not point the Court to any evidence in the record to rebut this testimony or to show that, at these quantities offsite, the pollutants would have been sufficient to cause chemical odors. Based on the credible evidence presented at trial, the Court finds that Plaintiffs fail to establish traceability as to any violations where the Odor Pollutants were of a sufficient magnitude to reach outside the Complex in quantities sufficient to cause chemical odors.

⁴⁸ *Trial Transcript* at 8-125:21-25 to 8-126:2, 8-128:3–12.

⁴⁹ *Trial Transcript* at 8-127:5–14, 8-152:14–24.

⁵⁰ *See, e.g., Trial Transcript* at 9-119:10–21.

iii. Violations Involving Allergy-Like or Respiratory Symptoms

6s. Plaintiffs contend they produced sufficient evidence to establish traceability as to 3,997 days of violations resulting from pollutants that cause or contribute to respiratory or allergy-like symptoms and meet the geographic nexus inquiry.⁵¹ Exxon contends Plaintiffs have not established any violation can be traced outside the Complex in sufficient quantities to affect Plaintiffs' members.

6t. At trial, Plaintiffs produced evidence to show the following pollutants cause or contribute to respiratory or allergy-like symptoms: (1) carbonyl sulfide;⁵² (2) carbon monoxide;⁵³ (3) hydrogen cyanide;⁵⁴ and (4) nitrogen oxides⁵⁵ (collectively, the "Respiratory Pollutants").⁵⁶ Considering this evidence, the Court

⁵¹ This number is the sum of Plaintiffs' calculations of violations that cause or contributed to respiratory or allergy-like symptoms based on: 70 days of violations for nonzero emissions standard, 3,814 days of violations that involved a reportable quantity of pollutant, and 113 days of violations that were of a sufficient magnitude to reach beyond the Complex. *Plaintiffs' Proposed FFCL on Limited Remand, supra* note 13, at 16–20. The Court notes this calculation does not take into consideration prior days of violations that overlap with other traceability categories.

⁵² *Trial Transcript* at 11-60:21–21 to 11-62:4.

⁵³ *Plaintiffs' Exhibits* 541–43.

⁵⁴ *Plaintiffs' Exhibit* 533.

⁵⁵ *Plaintiffs' Exhibits* 544, 546.

⁵⁶ Plaintiffs also produced evidence that benzene, ethylbenzene, hydrogen chloride, hydrogen sulfide, sulfur dioxide, toluene, and xylene cause or contribute to respiratory or allergy-like symptoms. *Plaintiffs' Exhibits* 476, 524–26, 535–40, 542–46, 548–52. However, as violations involving these pollutants were already analyzed as part of the Odor Pollutants, consideration of these pollutants as part of the Respiratory Pollutants would

finds any violation where one of the Respiratory Pollutants was emitted caused or contributed to respiratory or allergy-like symptoms.

6u. In addition to the Respiratory Pollutants, Plaintiffs contend the pollutants that the evidence shows contribute to ground-level ozone formation also contribute to respiratory or allergy-like symptoms, because ground-level ozone causes or contributes to respiratory or allergy-like symptoms. Evidence presented at trial shows it is undisputed that highly reactive volatile organic compounds (“HRVOCs”)⁵⁷ contribute to the formation of ground-level ozone.⁵⁸ Dr. Brooks testified that ground-level ozone causes or contributes to respiratory or allergy-like

likely result in duplicate violations and days of violations. Accordingly, the Court does not reassess violations involving these overlapping pollutants as part of the Respiratory Pollutants.

⁵⁷ For Harris County, HRVOCs include: “one or more of the following volatile organic compounds (VOC): 1,3-butadiene; all isomers of butene (e.g., isobutene (2-methylpropene or isobutylene), alpha-butylene (ethylethylene), and beta-butylene (dimethylethylene, including both cis- and trans-isomers)); ethylene; and propylene.” 30 Tex. Admin. Code § 115.10(21)(A).

⁵⁸ *Plaintiffs’ Exhibits* 476 at 25; *Trial Transcript* at 7-143:17 to 7-144:1 (testimony of Dr. Brooks); 8-180:25 to 8-181:1; 8-205:6–19 (testimony of David Cabe). The Court notes Plaintiffs point to evidence that acetaldehyde, ethyltoluene, formaldehyde, nitrogen oxides, pentene, toluene, trimethylbenzene, volatile organic compounds, and xylene also cause or contribute to ground-level ozone formation. *Plaintiffs’ Proposed FFCL on Limited Remand*, *supra* note 13, at 14. The Court does not include these pollutants, as they have already been included in an analysis of other traceability categories or the Court finds there was insufficient evidence presented by Plaintiffs to show that the pollutant caused or contributed to ozone formation.

symptoms.⁵⁹ Both Dr. Brooks and David Cabe, Exxon’s environmental engineer and air pollution consultant,⁶⁰ testified that ground-level ozone requires certain pollutants and conditions, like sunlight, for formation to occur.⁶¹ Dr. Brooks further testified that studies have shown ozone precursors, like HRVOCs, can form ozone downwind of the emission point of the precursor and at a later time than that of the emission.⁶² Therefore, there is no certainty that HRVOCs emitted by the Complex actually contributed to ozone formation that would then cause or contribute to respiratory or allergy-like symptoms. However, traceability does not require “scientific certainty.” *See ETCL II*, 968 F.3d at 370 (quoting *Save Our Cmty. v. EPA*, 971 F.2d 1155, 1161 (5th Cir. 1992)). The test is whether the pollutant *could* cause or contribute to respiratory or allergy-like symptoms. *Id.* at 371 (emphasis added). Thus, the Court finds Plaintiffs have shown that violations involving the emission of HRVOCs could cause or contribute to respiratory or allergy-like symptoms. The Court therefore turns to whether the violations where the Respiratory Pollutants or HRVOCs were emitted satisfy the geographic nexus test by having exceeded a nonzero emissions limit, was required to be reported under Texas regulations, or was

⁵⁹ *Trial Transcript* at 7-36:25 to 7-37:2; 7-148:9–19.

⁶⁰ *Trial Transcript* at 8-109:6–20.

⁶¹ *Trial Transcript* at 7-143:17–22, 7-189:15–16, 8-186:12–14, 8-204:8–14

⁶² *Plaintiffs’ Exhibits* 476, 484; *Trial Transcript* at 7-144:14 to 7-146:5.

proven to be of a sufficient magnitude to reach Baytown neighborhoods outside the Complex in quantities that would cause chemical odors. *See id.* at 370–71.

6v. Considering the same exhibits and columns discussed above,⁶³ the Court finds traceability has been established for any violation where one of the Respiratory Pollutants or HRVOCs was emitted in an amount greater than the indicated nonzero emissions limit. Having reviewed the Events and Deviations for said violations, the Court finds Plaintiffs have established traceability as to 24 violations, totaling 471 days of violations.⁶⁴

6w. Texas law provides the following “reportable quantities” for each of the Respiratory Pollutants and HRVOCs:

- Carbonyl Sulfide – 100 lbs.;
- Carbon monoxide – 5000 lbs.;
- Hydrogen Cyanide – 10 lbs.;
- Nitrogen Oxides – 200 lbs.;
- Ethylene – 100 lbs.;
- 1,3 Butadiene – 10 lbs.;
- Butenes – 100 lbs.; and
- Propylene – 100 lbs.

30 Tex. Admin. Code §§ 101.1(89), 115.10(21)(A); 40 C.F.R. Part 302, Table 302.4; 40 C.F.R. Part 355, App. A. If the violation includes a mixture of air pollutants where

⁶³ *See supra* ¶ III.6n.

⁶⁴ *See Plaintiffs’ Exhibits 592–94; Traceability Spreadsheets, supra* note 17, at Exhibits 5–7.

the relative amount of each individual pollutant is unknown, the reportable quantity is any amount of the mixture that equals or exceeds the reportable quantity for any single pollutant that is present in the mixture. 30 Tex. Admin. Code § 101.1(89)(B)(ii).⁶⁵ When a violation shows the emitted amount of one of the Respiratory Pollutants or HRVOCs exceeds the reportable quantity for that pollutant and was reported,⁶⁶ the Court finds traceability has been established. Having reviewed the Events and Deviations for said violations, the Court finds Plaintiffs have established standing as to 114 violations, totaling 419 days of violations.⁶⁷

6x. Lastly, Plaintiffs contend traceability is established as to 113 violations that were of a sufficient magnitude to reach Baytown neighborhoods outside the

⁶⁵ The Court notes that this part of the statute becomes relevant for certain violations that show several different pollutants, but do not provide specific emissions in pounds for each pollutant. For example, in Plaintiffs' Exhibit 589 and Traceability Spreadsheet Exhibit 4, STEERS event 110886 shows a release of 3,650.46 pounds of various pollutants, including 1,3 butadiene, cis-2-butene, ethylene, and propylene. Though the specific emissions as to each of these HRVOCs is not provided, under Texas law, the reportable quantity would be equal to any single pollutant present. Here, that could be 10 lbs. or 100 lbs. In light of the Circuit's instructions on remand, the Court considered the higher amount when more than one reportable quantity could be used.

⁶⁶ See *supra* ¶ III.6 n.15.

⁶⁷ The breakdown for each section at the Complex is as follows: (1) 80 violations, totaling 359 days of violations from refinery Reportable Events; (2) 21 violations, totaling 47 days of violations from the olefins plant Reportable Events; (3) 10 violations, totaling 10 days of violations from the chemical plant Reportable Events; and (4) 3 violations, totaling 3 days of violations under Count III (specifically, the three STEERS event from the chemical plant).

Complex in sufficient quantities to cause respiratory or allergy-like symptoms.⁶⁸ Exxon contends that Plaintiffs have not shown any of the pollutants from the violations exceeded industry standards or were sufficient in magnitude to affect Plaintiffs' members outside the Complex.

6y. Plaintiffs point to the testimony of Mr. Cabe and Dr. Fraiser about air dispersion analyses that show in at least 144 instances, the events caused an offsite pollutant concentration in excess of air comparison values ("ACVs").⁶⁹ ACVs include the National Ambient Air Quality Standards ("NAAQS"), which are federal standards set by the EPA, effects screening levels ("ESLs") set by Texas Commission on Environmental Quality, air monitoring comparison values, and a reference evaluation value.⁷⁰ Mr. Cabe testified none of the National Ambient Air Quality Standards ("NAAQS") were exceeded for the violations which he conducted air dispersion modeling and that exceeding an air comparison value in a model requires additional analysis by a toxicologist to determine if public health or safety was in danger.⁷¹ Furthermore, Dr. Fraiser, a toxicologist, discussed in depth several

⁶⁸ Plaintiffs note that several of the 113 violations may overlap with violations that traceability has already been established for in other categories. *See Plaintiffs' Proposed FFCL on Limited Remand, supra* note 13, at 20–21.

⁶⁹ *Trial Transcript* at 8-152:9–13, 8-155:2–12, 8-192:22 to 8-193:1.

⁷⁰ *Trial Transcript* at 8-125:21-25 to 8-126:2, 8-128:3–12.

⁷¹ *Trial Transcript* at 8-127:5–14, 8-152:14–24.

of the violations that had been modeled and found that even in situations where the offsite pollutant exceeded ACVs, it would not have contributed to pollution. Plaintiffs do not point the Court to evidence in the record to rebut this testimony or to show that, at these quantities offsite, the pollutants would have been sufficient to cause respiratory or allergy-like symptoms. Based on the credible evidence presented at trial, the Court finds that Plaintiffs fail to establish traceability as to any violations where the Respiratory Pollutants or HRVOCs were of a sufficient magnitude to reach outside the Complex in quantities sufficient to cause respiratory or allergy-like symptoms.

*iv. Total Violations by Count*⁷²

6z. The following table provides the total violations for which Plaintiffs have established traceability organized by each count in their complaint:

Count	Violations	Days of violations
Count I	1,207	2,120
Count II ⁷³	739	1,462
Count III	13	18
Count IV	42	44
Count V	7	7
Totals	2,008	3,651

⁷² Because the Fifth Circuit did not address the Court's findings as to violations under Count VI and on the first appeal, the Circuit affirmed the Court's findings that Count VII violations are not actionable, the Court need not address traceability as to Counts VI or VII.

⁷³ As previously discussed, some of the Count II violations overlap with Count I violations. The Court has accounted for the overlap in its traceability analysis and does not double count any violations provided in the totals above.

*c. Redressability*⁷⁴

*B. Actionability*⁷⁵

C. Affirmative Defenses

49. The Court addresses the applicability of Exxon's asserted affirmative defenses prior to addressing the relief sought by Plaintiffs, because if an affirmative defense is proven applicable to a violation, the Court in its assessment of the penalty factors will not consider that violation. In its revised findings of fact and conclusions of law, the Court found the Act of God defense was inapplicable as a matter of law and that Exxon did not meet its burden to show the applicability of 30 Texas Administrative Code § 101.222 affirmative defenses as to the relevant STEERS events.⁷⁶ The Fifth Circuit vacated the Court's judgment and remanded for additional

⁷⁴ Because the Court reincorporates by reference its previous conclusions of law as to redressability, ¶¶ III.7–III.8 from the Court's Revised Findings of Fact and Conclusions of Law is omitted in the foregoing analysis.

⁷⁵ The Fifth Circuit did not address the Court's findings as to actionability of the violations under each of the counts on the limited remand. As such, the Court's revised findings of fact and conclusions of law as to actionability of each count and violation remains in effect. The Court therefore reincorporates by reference *Revised Findings of Fact and Conclusions of Law*, Document No. 257, Part III.B. The findings are amended only to the extent necessary to adjust for those violations for which Plaintiffs have failed to show traceability.

⁷⁶ *Revised Findings of Fact and Conclusions of Law*, Document No. 257 at 69–74.

findings as to, *inter alia*, the Act of God affirmative defense.⁷⁷ As instructed on remand, the Court amends its findings on Exxon’s affirmative defenses only as to Exxon’s Act of God defense.

1. *Hurricane Ike Defenses*

50. Exxon contends Hurricane Ike’s landfall was an act of God that precludes liability for ten reportable events resulting in violations. On the first remand, Plaintiffs asserted the CAA does not contain an Act of God defense, and therefore, the defense is not available because Exxon had not met its burden to show any such provision was incorporated in Texas’s State Implementation Plan (“SIP”).⁷⁸ In remanding for findings on the Act of God defense, the Fifth Circuit held that, contrary to Plaintiffs’ contention, Texas’s SIP does incorporate an Act of God defense. *See ETCL II*, 968 F.3d at 373 (“The Texas SIP—the governing federal law under the Clean Air Act—thus incorporates an Act of God defense.”). Plaintiffs now contend Exxon has not met its burden to establish the Act of God defense.

51. Section 7.261 of the Texas Water Code—the Texas SIP’s current statutory home—states:

⁷⁷ Because the Fifth Circuit did not address the Court’s findings as to Exxon’s entitlement to affirmative defenses under 30 Texas Administrative Code Chapter 101.222, those findings remain in effect.

⁷⁸ Exxon contends Plaintiffs did not previously raise the argument that § 7.251 of the Texas Water Code is not included in the Texas SIP. That is incorrect. *See Plaintiff’s Revised Proposed Findings of Fact and Conclusions of Law*, Document No. 218, ¶ 42.

If a person can establish that an event that would otherwise be a violation of a statute within the commission's jurisdiction or a rule adopted or an order or a permit issued under such a statute was caused solely by an act of God . . . or other catastrophe, the event is not a violation of that statute, rule, order, or permit.

Tex. Water Code § 7.251. “[A]n act of God is defined as any accident, due directly and exclusively to natural causes without human intervention, which by no amount of foresight, pains, or care, reasonably to have been expected, could have been prevented.” *HRD Crop v. Lux Int’l Corp.*, Civ. Action No. H-06-0730, 2007 WL 2050366, at *11 (S.D. Tex. July 17, 2007) (Rosenthal, C.J.) (citing *Union Pac. R. Co. v. Heartland Barge Mgmt., L.L.C.*, 2006 WL 2850064, at *13 (S.D. Tex. 2006) (Rainey, J.)). Not all hurricanes are considered legal acts of God. *See Nat’l Liab. & Fire Ins. Co. v. R&R Marine*, Civ. Action H-07-3169, 2009 WL 10695626, at *4 (S.D. Tex. Oct. 20, 2009) (Hughes, J.).

51a. Prior to Hurricane Ike’s landfall, the Governor of Texas issued a declaration of a state of disaster including the following proclamation: “As provided in Section 418.016, all rules and regulations that may inhibit or prevent prompt response to [the threat of the hurricane] are suspended for the duration of the state

of disaster.”⁷⁹ The proclamation applied from September 7, 2008 through November 6, 2008.⁸⁰ On September 15, 2008, the TCEQ issued guidance regarding the proclamation, stating that no prior approval was needed for any exceedance of an emissions limit that was directly related to hurricane response.⁸¹ Prior to hurricane landfall, the Complex was shut down.⁸² After the hurricane passed, the Complex resumed operations.⁸³

51b. Exxon presented evidence at trial establishing that precautionary measures were undertaken at the Complex in anticipation of the impending arrival of Hurricane Ike. Kovacs testified that the Complex initiated a shutdown in the advent of Hurricane Ike that resulted in emissions events.⁸⁴ Kovacs testified that shutting down the plant “was the safest thing to do from a safety and environmental perspective in advance of the hurricane.”⁸⁵ Because Hurricane Ike’s arrival was imminent, Kovacs testified that the complex had to be shut down “promptly.”⁸⁶

⁷⁹ *Defendants’ Exhibit 225; Trial Transcript 3-2:2–21.*

⁸⁰ *Trial Transcript* at 3-209:6–14.

⁸¹ *Plaintiffs’ Exhibit 587* at 3; *Trial Transcript* at 4-24:7 to 4-26:2.

⁸² *Trial Transcript* at 3-206:4–7, 3-209:3–51.

⁸³ *Trial Transcript* at 3-209:16.

⁸⁴ *Trial Transcript* at 3-206:4–7.

⁸⁵ *Trial Transcript* at 3-207:6–8

⁸⁶ *Trial Transcript* at 3-209:3–5.

Kovacs also testified that shutting down the plant was required because the eye of Hurricane Ike eventually passed directly over the Complex.⁸⁷

51c. Nevertheless, at trial, Exxon failed to present evidence that Hurricane Ike could not have been anticipated. The evidence presented points to the contrary, as Exxon was able to take steps to shut down the Complex. Further, Exxon did not present any evidence the violations in question occurred solely as a result of Hurricane Ike. In fact, the Reported Events cite the cause of the emissions as a scheduled shutdown due to approach of Hurricane Ike.⁸⁸ Therefore, the violations are not accidents, but rather the result of Exxon's precautions in preparation for Hurricane Ike. Therefore, based on the evidence presented, the Court finds Exxon fails to put forth sufficient evidence to establish Hurricane Ike was an "act of God." Thus, the Court finds Exxon is not entitled to defense from liability for the ten reportable events resulting in violations under the Texas SIP.

2. 30 Texas Administrative Code § 101.222 Affirmative Defenses⁸⁹

⁸⁷ *Trial Transcript* at 3-207:12.

⁸⁸ *See, e.g., Plaintiffs' Exhibit 587* (discussing STEERS event 113887).

⁸⁹ The Court notes it does not include its analysis as to Exxon's affirmative defenses under 30 Texas Administrative Code § 101.222 or as to Exxon's request for a declaratory judgment. However, the Court reincorporates by reference those prior findings, as they remain undisturbed on limited remand. *See Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶¶ III.50 – III.55.

E. Penalties

56. Having found on limited remand that over 3000 violations are actionable under the CAA’s citizen suit provision, the Court will exercise its discretion to conduct a penalty assessment for those events.

57. “In determining the amount of any penalty to be assessed under” the CAA in a citizen suit, the Court “shall take into consideration (in addition to such other factors as justice may require)” the following penalty assessment factors:

the size of the business,
the economic impact of the penalty on the business,
the violator’s full compliance history and good faith efforts to comply,
the duration of the violation as established by any credible evidence . . . ,
payment by the violator of penalties previously assessed for the same
violation,
the economic benefit of noncompliance, and
the seriousness of the violation.

42 U.S.C. § 7413(e)(1).

58. The Court is not required to assess a penalty for violations. 42 U.S.C. § 7413(e)(2) (“A penalty *may* be assessed for each day of violation.” (emphasis added)); *Luminant*, 714 F.3d at 852 (“[T]he penalty assessment criteria . . . are considered by the courts . . . in determining *whether or not* to assess a civil penalty for violations and, if so, the amount.” (emphasis added)); *see also* 42 U.S.C. § 7413(e)(1) (“In determining the amount of *any* penalty to be assessed” (emphasis added)); *Env’tl. Conservation Org. v. City of Dallas*, 529 F.3d 519, 530 (“[E]ven in the event of a successful citizen suit, the district court is not bound to

impose the maximum penalty afforded under the statute.”).⁹⁰ Rather, the amount of any penalty, the analysis of the factors, and the process of weighing the factors are “ ‘highly discretionary’ with the trial court.” *Sierra Club, Lone Star Chapter v. Cedar Point Oil Co.*, 73 F.3d 546, 576 (5th Cir. 1996) (quoting *Tull v. United States*, 481 U.S. 412, 427 (1987)); *United States ex rel. Adm’r of EPA v. CITGO Petroleum Corp.*, 723 F.3d 547, 551 (5th Cir. 2013). Each of the penalty assessment factors are considered in turn.

a. Size of the Business and Economic Impact of the Penalty on the Business

59. Plaintiffs contend the large size and profitability of Exxon weigh towards imposing a penalty. Specifically, Plaintiffs contend Exxon will only be impacted by a large penalty and has the ability to pay the alleged maximum penalty. Exxon does not dispute these contentions, and the Court agrees given the facts found in the Revised Findings of Fact and Conclusions of Law, paragraph II.1. Accordingly, both the size and economic impact factors weigh towards assessing a penalty.

⁹⁰ Because the penalty provisions in the CAA are similar to the penalty provisions in the CWA, “CWA cases are instructive in analyzing [penalty] issues arising under the CAA.” *Pound v. Airosol Co.*, 498 F.3d 1089, 1094 n.2 (10th Cir. 2007) (citing *United States v. Anthony Dell’Aquila, Enters. & Subsidiaries*, 150 F.3d 329, 338 n.9 (3d Cir. 1998)).

b. Violator's Full Compliance History and Good Faith Efforts to Comply

60. Quantitatively, the number of Events and Deviations at issue in this case is high: 241 Reportable Events, 3,735 Recordable Events, and 901 Title V Deviations.⁹¹ Thus, based on the total number of Events and Deviations alone, Exxon's compliance history appears to be arguably inadequate. However, the Complex is one of the largest and most complex industrial sites in the United States.⁹² Therefore, there are numerous opportunities for noncompliance, and the number of Events and Deviations alone is not the best evidence of compliance history.⁹³ In other words, the number of Events and Deviations must be considered with respect to the size of the Complex. For example, in 2012 the refinery averaged one pin hole leak for every 167 linear miles of pipe.⁹⁴

61. Moreover, the number of Events and Deviations does not alone mean Exxon did not make a good faith effort to comply. Despite good practices, it is not

⁹¹ *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ II.5. Though several thousand violations are no longer actionable due to lack of traceability or voluntarily exclusion by Plaintiffs, the "overall number of violations at the Baytown complex remains relevant as part of 'the violator's full compliance history' that [the Court] considers in assessing the amount of each penalty within the statutory range." *ETCL II*, 968 F.3d at 374.

⁹² *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ II.2.

⁹³ *See Trial Transcript* at 10-220:14 to 10-223:16.

⁹⁴ *Trial Transcript* at 10-221:24 to 10-222:10.

possible to operate any facility—especially one as complex as the Complex—in a manner that eliminates all Events and Deviations.⁹⁵ Based on the facts expounded paragraphs II.12–14 of the Court’s Revised Findings of Fact and Conclusions of Law, the Court finds Exxon made substantial efforts to improve environmental performance and compliance, including implementing four environmental improvement projects to reduce emissions and employing a vast array of emissions-reduction and emissions-detection equipment. Likely due to Exxon’s substantial efforts, the Complex achieved significant reduction in the number of Reportable Events, the amount of unauthorized emissions of criteria pollutants, and the total amount of emissions over the years at issue in this case.⁹⁶ For reasons explained *infra* in footnote 98, the Court is not persuaded by Keith Bowers’s opinion that certain capital improvements or additional spending on maintenance would have prevented the Emissions and Deviations. In addition, the Court does not accept Plaintiffs’ view that the number of events involving a certain type of equipment, a certain unit, or a certain type of issue is alone adequate to support a conclusion that any of the Events

⁹⁵ *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ II.15. The Court understands impossibility is not a defense to penalties, except as it might apply to the applicable affirmative defense criteria. The Court does not consider the fact that it is not possible to operate the Complex in a manner that eliminates all Events and Deviations as a reason to not impose penalties. Rather, the Court notes this fact only to explain that the number of Events and Deviations does not alone mean Exxon did not make a good faith effort to comply.

⁹⁶ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.16.

or Deviations were preventable.⁹⁷ Rather, a root cause analysis is necessary to determine whether the Events and Deviations resulted from a recurring pattern and to determine whether improvements could have been made to prevent recurrence. Plaintiffs did not put forth any credible evidence that any of the Events or Deviations resulted from the same root cause.⁹⁸ Therefore, there is no credible evidence that any of the Events or Deviations resulted from a recurring pattern or that improvements could have been made to prevent recurrence. For each of the Reportable Events, Exxon conducted an extensive internal investigation, evaluated the root cause of the event, and implemented appropriate corrective actions to try to prevent recurrence.⁹⁹ Similarly, for the Recordable Events and Deviations, Exxon analyzed the records for trends and ways to improve, identified root causes, and implemented corrective

⁹⁷ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.7.

⁹⁸ In particular, the Court finds Bowers's testimony regarding the Events and Deviations having "common causes" is neither credible nor persuasive. For example, the Events and Deviations that Bowers categorizes as having the same common cause of "power supply failures" include the following: moisture got into the connections of improperly installed lightening arresters, causing them to short out; a squirrel bypassed animal traps, causing some electrical equipment to short circuit; and a hawk dropped a snake on top of Substation One, causing an electrical power disruption. *Defendants' Exhibits* 1020C, 1020I–O; *Trial Transcript* at 10-244:17 to 10-253:17. Categorizing such varied events together does not prove the events had a common cause, resulted from a recurring pattern, or were preventable.

⁹⁹ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶¶ II.7–II.9.

actions.¹⁰⁰ Additionally, Exxon's maintenance policies and procedures conform or exceed industry standards and codes.¹⁰¹ The Court finds the opinion of Dr. Christopher S. Buehler, a chemical engineer, that the Complex ranks at or near the top of petrochemical facility "leaders in maintenance and operation practices" is persuasive and credible.¹⁰² Lastly, the Court finds the opinions of John Sadlier, the former Deputy Director of the Office of Compliance and Enforcement at the TCEQ who dealt with Exxon for 20 years while working at the TCEQ, persuasive and credible when he opined that he "always felt and continue[s] to feel today that Exxon had always made a concerted effort to comply[,] that their dealings with [the TCEQ] were straightforward frank discussions," that Exxon is "[a]bsolutely not" a "bad actor," and that he has no reason to not believe Exxon "will earnestly try to achieve the goals" in the Agreed Order of reducing emissions.¹⁰³ After evaluating all the evidence, the Court finds the preponderance of the credible evidence shows Exxon made good faith efforts to comply with the CAA.¹⁰⁴ Accordingly, Exxon's full

¹⁰⁰ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.7.

¹⁰¹ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.14.

¹⁰² *Trial Transcript* at 12-16:10-20.

¹⁰³ *Defendants' Exhibit 546* at 14-15, ¶¶ 40-44.

¹⁰⁴ In addition to the aforementioned issues, Plaintiffs contend Exxon's policy of always asserting the affirmative defense to penalties to the TCEQ is, in itself, bad faith. Based on the greater weight of the credible evidence, the Court disagrees such policy is in bad faith. Although Exxon initially asserts the affirmative defense when reporting an event

compliance history and good faith efforts to comply weigh against assessing a penalty.

c. Duration of the Violation

62. On the first appeal, the Fifth Circuit's opinion held the Court abused its discretion by viewing violations of a longer duration as offset by violations of a shorter duration. The Circuit's opinion also indicated the Court should revisit its approach as to, whether in calculating the duration of a violation, a court should look to the duration of each individual violation or the period of time over which the violations occurred. *See Env't Tex.*, 824 F.3d at 531. The Court was instructed on the first remand, if it continued to consider durations of the violations individually, to determine whether any violation standing alone was sufficient to justify imposing a penalty.¹⁰⁵

63. The Court first turns to the proper standard for determining whether this factor requires examining the length of an individual violation or the period of time over which the violations occurred. Exxon does not address the case law cited by Plaintiffs, and referred to by the Fifth Circuit, that indicates the Court should

to the TCEQ, the TCEQ, after investigation, determines whether the affirmative defense actually does apply.

¹⁰⁵ Exxon contends the Court should continue to look to duration of the violations standing alone in analyzing this factor. However, Exxon cites no case law to support this proposition.

consider the period of time over which the violations occurred on this factor. *See United States v. Vista Paint Corp.*, No. EDCV 94-0127 RT, 1996 WL 477053, at *15 (C.D. Cal. Apr. 16, 1996); *United States v. B & W Inv. Props., Inc.*, No. 91 C 5886, 1994 WL 53781, at *4 (N.D. Ill. Feb. 18, 1994); *United States v. Midwest Suspension & Brake*, 824 F. Supp. 713, 736–37 (E.D. Mich. 1993); *United States v. A.A. Mactal Constr. Co. Inc.*, Civ. A. No. 89-2372-V, 1992 WL 245690, at *3 (D. Kan. Apr. 10, 1992). Nor does Exxon argue that the plain meaning of the phrase “duration of the violation” requires examining each individual violation as opposed to the period of time over which the violations occurred. The Court, in light of the Fifth Circuit’s notation of the authority supporting the position, adopts the interpretation of this factor that examines the period of time over which the credible evidence establishes the violations occurred.

64. The Court next turns to, whether looking to the period of time over which the violations occurred, the duration factor supports imposing a penalty. The credible evidence establishes the violations at issue occurred over an eight-year period. During that eight-year time period, Exxon averaged more than one violation per day. Accordingly, the Court finds the duration factor weighs in favor of assessing a penalty.

d. Payment by the Violator of Penalties Previously Assessed for the Same Violation

65. Exxon has paid \$1,423,632 in monetary penalties for the Events and Deviations at issue in this case to either the TCEQ or Harris County.¹⁰⁶ Plaintiffs accede this amount should be deducted from the total penalty determined by the Court, and the Court agrees. Accordingly, \$1,423,632 will be deducted from any penalty otherwise warranted.¹⁰⁷

e. Economic Benefit of Noncompliance

66. Generally, economic benefit of noncompliance is the financial benefit obtained by “**delaying** capital expenditures and maintenance costs on pollution-control equipment.” *CITGO Petroleum Corp.*, 723 F.3d at 552 (emphasis added). “[T]here are two general approaches to calculate economic benefit: (1) the cost of capital, i.e., what it would cost the polluter to obtain the funds necessary to install the equipment necessary to correct the violation; and (2) the actual return on capital, i.e., what the polluter earned on the capital that it declined to divert for installation

¹⁰⁶ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.8.

¹⁰⁷ Plaintiffs contended on the first remand that this amount should be reduced given the Court’s finding on Count VII; however, as this issue was not appealed or part of the Fifth Circuit’s instructions on the first remand, the Court will not revisit this issue. Now, on limited remand, Plaintiffs do not contend this amount should be reduced to account for violations for which standing is not established nor do Plaintiffs point the Court to evidence in the record that would allow the Court to adjust the previously assessed amount. Therefore, the Court declines to reduce the previously assessed amount.

of the equipment.” *Id.* (internal quotation marks omitted). A district court must make a reasonable estimate of economic benefit of noncompliance. *Id.* at 552–53.

67. On the first appeal, the Fifth Circuit held this Court erred in failing to enter findings as to whether Exxon received an economic benefit in delaying implementation of the four environmental improvement projects from the Agreed Order.¹⁰⁸ Although the Circuit upheld the Court’s rejection of Bower’s expert testimony on this issue as not credible,¹⁰⁹ the Circuit held that Plaintiffs elicited

¹⁰⁸ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.12.

¹⁰⁹ As to Bower’s testimony, the Court’s initial opinion made the following findings, in paragraphs 41–42 of the Court’s *Findings of Fact and Conclusions of Law*, Document No. 225:

41. Plaintiffs claim Exxon’s economic benefit of noncompliance is \$657 million as of June 2014. This number is based on Bowers’s opinion that the Events and Deviations would not have occurred if (1) if Exxon would have spent \$90 million more annually on maintenance and (2) if Exxon would have installed certain capital equipment (an additional sulfur unit costing \$100 million, an additional sour gas flare costing \$10 million, and two additional compressor stations costing \$50 million each). Plaintiffs offered the testimony of an economist, Jonathan Schefftz, who used Bowers’s inputs as to maintenance and capital expenditure costs delayed to calculate present-day economic benefit using the weighted-average cost of capital. The Court finds Schefftz’s method of calculating economic benefit to be reliable. However, Schefftz made it very clear that he had no opinion as to the reliability of the inputs given to him by Bowers. For reasons explained *infra*, the Court finds Bowers’s inputs to be neither reliable, credible, nor persuasive. Therefore, Schefftz’s economic benefit of noncompliance figure is equally unreliable.

42. Bowers is a retired refinery and chemical plant engineer. Bowers’s opinions and the bases for his opinions were vague and undetailed. Of the \$90 million Bowers opined should have been spent on maintenance, Bowers opined half of the \$90 million needed to be spent to hire 900 new

testimony on this issue from Shefftz that was independent of Bower's testimony. *Env't Tex.*, 824 F.3d at 529, 529 n.17. The Circuit noted this Court found Shefftz's method for calculating the economic benefit reliable. On the first remand, the Court was instructed that "the economic benefit estimate must 'encompass *every* benefit that defendants received from violation of the law' regardless of the inherently speculative nature of the inquiry." *Id.* at 530 n.19 (citing *United States v. Gulf Park Water Co.*, 14 F. Supp. 2d 854, 864 (S.D. Miss 1998)). Further, after making such findings, the Court was instructed to consider whether those four improvement projects were necessary to correct the violations. The Circuit noted the evidence indicated the projects "appear to be correlated in at least a general way" and the

employees to "run[] around inspecting things" and "[j]ust do more" maintenance and "stuff that needs to be done." He opined the remainder of the \$90 million needed to be spent on "material." He said his estimate was a "crude estimate," and he did not create a detailed budget of the type that he would have created when he was a project manager. Neither Bowers nor any other evidence credibly demonstrated that spending an additional \$90 million on maintenance would have prevented any of the Events or Deviations. Similarly, neither Bowers nor any other evidence credibly demonstrated that any of Bowers's suggested capital improvements would have prevented any of the Events or Deviations. Instead, the preponderance of the credible evidence shows Bowers's suggested capital improvements would not help reduce emissions. Moreover, Exxon has spent a substantial amount of money on maintenance, emissions-reduction and emissions-detection equipment, and capital improvement projects in an effort to reduce emissions and unauthorized emissions events. This includes four environmental improvement projects costing approximately \$20 million that Exxon was not required to undertake under law, and over \$500 million on maintenance and maintenance-related capital projects each year at issue.

Court's inquiry on remand "should center on whether the projects will ameliorate the kinds of general problems that have resulted in at least some of the permit violations upon which Plaintiffs have sued." *Id.* at 530, 530 n.19.

68. The Court interpreted the Fifth Circuit's opinion on initial remand as instructing it to do a two-step analysis: (1) enter findings based on Shefftz's testimony as to the economic benefit Exxon received from delaying implementation of the projects¹¹⁰; and (2) enter findings on the "necessary to correct" prong as to whether the four improvement projects would generally ameliorate the violations on which the Plaintiffs have sued, without requiring a showing that the projects are specifically tied to the prevention of each violation.

69. On the first step, the Court turns to Shefftz's testimony as to any economic benefit Exxon received from delaying implementation of the four projects in the Agreed Order. The Court previously found Shefftz's methodology reliable. Shefftz calculated the economic benefit to Exxon from delaying implementation as \$11,746,234 as of November 22, 2013 (the date of Shefftz's report).¹¹¹ The economic

¹¹⁰ The Court interprets the Circuit's opinion as holding that Shefftz's testimony alone is sufficient to carry Plaintiff's burden of proof on the first step. To the extent Exxon contests the sufficiency of Shefftz's testimony, in regards to the interest rate chosen in the calculations and because he failed to account for the cost of delay by ignoring the increase in equipment expense, the Circuit instructed the Court to consider "every benefit . . . regardless of the inherently speculative nature of the inquiry." *Env't Tex.*, 824 F.3d at 530 n.19 (emphasis in original).

¹¹¹ *Trial Transcript* 5-57:14 to 58:13; *Plaintiffs' Exhibit* 556 at 1, 18–21.

benefit would increase by \$61,066 per month until the economic benefit was disgorged in the form of a civil penalty.¹¹² The Court's Revised Findings of Fact and Conclusions of Law were issued in April 2017, which encompassed forty-one additional months from the date of Shefftz's report. Therefore, the economic benefit would encompass an additional \$2,503,706 and the total economic benefit from delay is \$14,249,940. Accordingly, the Court finds Exxon received an economic benefit of \$14,249,940 from the delayed implementation of the improvement projects.¹¹³

70. The Court now turns to the Circuit's direction on the second step, whether a delayed project is "necessary to correct" the types of violations in the complaint. The Circuit has articulated a general correlation standard to utilize in analyzing this step.¹¹⁴ As an example of the general correlation standard, the Circuit notes that "one project aims to 'more effectively monitor and troubleshoot' a refinery flare system in order to 'improve the identification and characterization of flaring

¹¹² *Plaintiffs' Exhibit 556* at 14, 19; *Trial Transcript*, 5-49:5–9, 5-52:6–10.

¹¹³ Plaintiffs previously contended on the first remand that because the Circuit instructed the Court to consider every benefit, the one billion dollars the Court found demonstrated Exxon's good faith efforts to comply should be included in the calculation of the economic benefit from delay. The Court reincorporates its prior findings as to this contention. *Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ III.69 n.248. On limited remand, Plaintiffs do not reassert this contention and thus, the Court need not address it further.

¹¹⁴ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ III.67.

events’ (Count IV) and the order estimates that the projects will specifically achieve reductions in HRVOC emissions (Count III).” *Env’t Tex.*, 824 F.3d at 530. Given the Fifth Circuit’s holding that at least one project meets the general correlation standard, the Court finds the Plaintiffs have met their burden as to at least one project on the “necessary to correct” step. Additionally, the Circuit noted this Court had previously recognized in its order the “projects reflect ‘an effort to reduce emissions and unauthorized emissions events’ at the Baytown complex.”¹¹⁵ *Id.* As the Fifth Circuit instructed the Court to analyze the “necessary to correct” step at a high level of generality, the Court finds Plaintiffs have carried their burden of proof.¹¹⁶ Plaintiffs have demonstrated that: (1) the Plant Automation Venture “is intended to provide early identification of potential events and/or instrumentation abnormalities, allowing proactive response”¹¹⁷; (2) the Fuels North Flare System Monitoring/Minimization Project is intended to “more effectively monitor and troubleshoot” the refinery flares¹¹⁸; (3) the BOP/BOPX Recovery Unit Simulators

¹¹⁵ *Revised Findings of Fact and Conclusion of Law*, Document No. 257, ¶ II.12.

¹¹⁶ To the extent Exxon argues the projects were voluntary and not required for compliance, and therefore, not a proper basis for determining delayed economic benefit, the Court notes the Fifth Circuit directed it to use those projects on remand in its analysis of the factor.

¹¹⁷ *Defendants’ Exhibit 222*, ¶ 12.a.

¹¹⁸ *Defendants’ Exhibit 222*, ¶ 12.a.

Project is intended to “improve operator training and competency, resulting in reduced frequency and severity of emissions events”¹¹⁹; and (4) the Enhanced Fugitive Emissions Monitoring Project is a program to locate VOC and HRVOC leaks.¹²⁰ Accordingly, under the generally correlated standard articulated by the Fifth Circuit, the Court finds the four improvement projects were “necessary to correct” the violations at issue in this suit.

71. The four projects that formed the basis of the economic benefit calculations, when considered together, had the effect of reducing emission events and unauthorized emission events overall. Furthermore, each of the four projects discussed above addressed the types of violations found traceable by this Court. For example, the Fuels North Flare System Project would have helped to monitor and troubleshoot the --- days of flaring violations found by this Court to be traceable and actionable by this Court. Thus, the Court’s findings as to traceability and the Act of God defense on limited remand do not alter the Court’s economic benefit determination.

72. The Court has found Exxon received an economic benefit of \$14,249,940 by delaying implementation of four improvement projects that were

¹¹⁹ *Defendants’ Exhibit 222*, ¶ 12.b.

¹²⁰ *Defendants’ Exhibit 222*, ¶ 12.d.

necessary to correct the violations at issue in this suit. Accordingly, the Court finds the economic benefit of noncompliance factor weighs in favor of assessing a penalty.

f. Seriousness

72. The CAA does not define “seriousness” in relation to the penalty assessment factors. *See* 42 U.S.C. § 7413(e)(1). Some circuit courts, not including the Fifth Circuit, have held that “a court may still impose a penalty if it finds there is a risk or potential risk of environmental harm” even if there is “a lack of evidence on the record linking [a defendant’s] CAA violations to discrete damage to either the environment or the public.” *Pound*, 498 F.3d at 1099 (citing *Pub. Interest Research Grp. of N.J., Inc. v. Powell Duffryn Terminals Inc.*, 913 F.2d 64, 79 (3d Cir. 1990)). The Fifth Circuit, however, did not issue any guidance in its opinion as to the proper definition of the term. Instead, on the first remand, the Fifth Circuit held the Court abused its discretion in viewing the violations it found to be more serious as offset by the numerous less serious violations. In doing so, the Circuit noted—without explicitly adopting—courts have recognized that “the overall number and quantitative severity of emissions or discharges may properly be relied upon as evidence of seriousness.” *ETCL*, 824 F.3d at 532 (citing *Pub. Interest Research Grp. of N.J., Inc. v. Powell Duffryn Terminals Inc.*, 913 F.2d 64, 79 (3d Cir. 1990)).

73. In light of the Circuit’s guidance, the Court looks to the overall number and quantitative severity of the emissions or discharges.¹²¹ The overall number of

¹²¹ The Court maintains its findings from its initial findings of fact and conclusions of law that most the violations were not serious from a public health and environmental perspective. As is necessary for parts of the Court’s initial judgment left undisturbed by the Fifth Circuit’s opinion, which relied on those findings, the Court reiterates here paragraphs 47 and 48 from the *Findings of Fact and Conclusions of Law*, Document No. 225:

47. Plaintiffs claim the Events and Deviations were serious because they adversely affected public health. To support this claim, Plaintiffs submitted evidence of the potential health effects caused by the types of pollutants emitted during the Events and Deviations. For example, hydrogen sulfide, which smells like rotten eggs or feces, can cause sore throat, cough, fatigue, headaches, nausea, and poor memory at low concentrations. Factors affecting potential risk of harm from pollutants include duration of exposure and concentration of pollutants. As discussed supra, the Events and Deviations differ tremendously in terms of duration and amount. Plaintiffs’ aforementioned evidence of the potential health effects caused by the types of pollutants emitted does not include credible evidence that any of the specific Events and Deviations were of a duration and concentration to—even potentially—adversely affect human health or the environment. Although Plaintiffs’ evidence of potential health effects provides some support of a potential risk of harm to human health, this evidence in this case is too tenuous and general to rise above mere speculation.

48. Plaintiffs also claim the Events and Deviations were serious because they created “nuisance-type impacts” to the community that interfered with daily life. Four Plaintiffs’ members experienced impacts to their life while living or visiting near the Complex, including pungent odors, allergies, respiratory problems, disruptive noise from flaring, concerns for their health after seeing haze believed to be harmful, and fears of explosion after seeing flares. However, these impacts could have been caused by Exxon’s authorized emissions or other companies’ emissions, because certain emissions and flares are authorized by permit and the nearby area in which the Complex operates is populated with numerous other refineries, petrochemical plants, and industrial facilities. Indeed, unauthorized emissions were a very small percentage of total emissions at the Complex for each year at issue. Plaintiffs’ members were only able to correlate some of

violations weighs in favor finding the violations serious. 3,651 days of violations are supported by the evidence.¹²² The Court notes the days of violations found to be traceable are significantly lower than the previous number of violations found by this Court. However, the remaining violations that Plaintiffs have shown to be traceable involve higher levels of emissions. The overall quantitative severity of the emissions totaled approximately ten million pounds of pollutants released into the atmosphere as a result of the violations in this case.¹²³ There were over 1.5 million pounds of pollutants released from traceable reported violations out of the refinery alone.¹²⁴ Accordingly, the Court finds given the number of days of violations and

the impacts, such as odor and noise, to five Events or Deviations at issue in this case. Moreover, Plaintiffs' members' testimonies regarding impacts were controverted by persuasive testimony from three other residents of the community who have lived very close to the Complex for many years. These residents testified the Complex has not impacted their lives, including that they have had no health problems they attribute to the Complex and that they have not experienced any problems with flaring, odors, noises, or emissions coming from the Complex. For all these reasons, the proposition that the Events or Deviations were serious because they created nuisance-type impacts on the surrounding community is not supported by the preponderance of the credible evidence.

¹²² Days of violations per count are as follows: (1) Count I: 2,120 days; (2) Count II: 1,462 days; (3) Count III: 18 days; (4) Count IV: 44 days; and (5) Count V: 7 days.

¹²³ *Plaintiffs' Exhibit 609.*

¹²⁴ *See Plaintiffs' Exhibit 587; Traceability Spreadsheets, supra note 17, Exhibit 2; supra ¶ III.A.b.*

the quantitative amount of emissions released as a result, the seriousness factor still weighs in favor of the assessment of a penalty.

g. Balancing the Factors

74. The maximum penalty for each day of violation is \$32,500 for violations occurring before January 13, 2014, and \$37,500 for violations occurring on January 13, 2009, and thereafter. 42 U.S.C. § 7413(e)(2); 40 C.F.R. § 19.4. Plaintiffs contend the total maximum penalty, after deducting for overlapping violations, is \$343,105,000. However, Plaintiffs previously sought \$40,815,618 in penalties on the first remand¹²⁵ and now seek \$19,951,278.¹²⁶ Exxon contends it should be assessed a penalty in an amount no more than \$1,365,000.

75. After carefully considering all the penalty assessment factors discussed above, the Court determines a penalty is appropriate in this case.¹²⁷ The size and economics factor, duration factor, economic benefit from noncompliance factor, and seriousness factor, all weigh towards assessing a penalty. While Exxon's compliance history weighs against assessing a penalty, that factor is not sufficient to outweigh

¹²⁵ *Plaintiffs' Proposed Findings of Fact and Conclusions of Law Following Remand*, Document No. 253, Exhibit 1, ¶ 52.

¹²⁶ *Plaintiffs' Proposed FFCL on Limited Remand*, *supra* note 13, at 33.

¹²⁷ Exxon did not contend in its initial proposed findings of fact and conclusions of law that the Court should consider the "justice so requires" factor. Therefore, the Court declines to address those arguments on remand.

the factors supporting assessing a penalty. Any penalty assessed will deduct the \$1,423,632 Exxon was already penalized from the amount.

76. The CAA does not prescribe a specific method for determining appropriate penalties. Some courts use the top-down approach, in which the court starts at the maximum penalty allowed by law and reduces downward as appropriate considering the factors as mitigating factors. *CITGO Petroleum Corp.*, 723 F.3d at 552. Other courts employ the bottom-up approach, in which the court starts at the economic benefit of noncompliance and adjusts upward or downward as appropriate considering the factors. *Id.* Rejecting a requirement that a district court must employ either the top-down or bottom-up approach, some circuit courts have held the district court can “simply rely[] upon [the] factors to arrive at an appropriate amount” without starting at a specific amount because “[t]he statute only requires that the [penalty] be consistent with a consideration of each of the factors.” *United States v. Anthony Dell’Aquila, Enters. & Subsidiaries*, 150 F.3d 329, 339 (3d Cir. 1998); *see Pound*, 498 F.3d at 1095. “The [Fifth] [C]ircuit has never held that a particular approach must be followed” and has left such decision to the discretion of the district court. *CITGO Petroleum Corp.*, 723 F.3d at 552, 554.

77. Based on the violations for which Plaintiffs contend they have established standing, Plaintiffs calculate the maximum penalty as follows¹²⁸: (1) Count I: 6,056 days of violation with a \$211,960,000 penalty; (2) Count II: 3,653 days of violations with a \$127,855,000 penalty; (3) Count III: 18 days of violations with a \$630,000 penalty; (4) Count IV: 44 days of violations with a \$1,540,000 penalty; and (5) Count V: 32 days of violations with a \$1,120,000 penalty. This calculates to a total maximum penalty of \$343,105,000. Given Plaintiffs fail to establish standing as to all these violations, the Court disagrees with this calculation. Rather, the Court finds the appropriate calculation for maximum penalty to be: (1) Count I: 2,120 days of violation with a \$74,200,000 penalty; (2) Count II: 1,462 days of violations with a \$51,170,000 penalty; (3) Count III: 18 days of violations with a \$630,000 penalty; (4) Count IV: 44 days of violations with a \$1,540,000 penalty; and (5) Count V: 7 days of violations with a \$245,000 penalty. As the Court found Exxon liable on the refinery violations in Count I, it will not include the refinery violations in Count II when calculating the maximum penalty. The total maximum penalty, therefore, is \$127,785,000.

¹²⁸ As on the first remand, Plaintiffs apply a penalty rate of \$35,000 per day across the board, given that approximately half the violations occurred when the rate was \$32,500 and half when the rate was \$37,500. Defendants do not contest this specific point in determining the maximum penalty. Therefore, as it is uncontested, the Court adopts this methodology as well.

78. Plaintiffs have submitted proposed findings of fact and conclusions of law that adopt a bottom-up approach, which calculates the penalty at an amount that is fifty percent higher than the economic benefit from noncompliance.¹²⁹ Therefore, as the Court has discretion as to which method to follow, the Court adopts the bottom-up approach presented by the Plaintiffs. In addition, the majority of the factors weigh towards imposing a penalty, which the Court determines justifies an increase from the base economic benefit from noncompliance number. However, in light of the significant decrease in traceable violations (12,735 less violations), the Court finds a fifty percent multiplier would be more than necessary to address the factors. The Court therefore finds that a penalty that is **ten percent higher** than the economic benefit from noncompliance is sufficient. The Court determined the economic benefit from noncompliance to be \$14,249,940.¹³⁰ Using Plaintiffs' proposed methodology for calculating the penalty (with a 10% multiplier now), the resulting penalty is \$15,674,934. Subtracting the \$1,423,632 already paid by Exxon in penalties, the resulting penalty amount is \$14,251,302.

¹²⁹ *Plaintiffs' Proposed Findings of Fact and Conclusions of Law Following Remand*, Document No. 253, Exhibit 1, ¶52.

¹³⁰ Plaintiffs' proposed findings of fact and conclusions of law utilized a higher base amount (approximately \$28 million); however, as the Court rejected Plaintiffs' theory that led to the higher base amount, the Court uses the amount in the actual finding to calculate the penalty. *Supra* ¶ III.69; *Plaintiffs' Proposed Findings of Fact and Conclusions of Law Following Remand*, Document No. 253, Exhibit 1, ¶ 52.

IV. CONCLUSION

Based on the foregoing, the Court hereby

ORDERS that Plaintiffs Environment Texas Citizen Lobby, Inc. and Sierra Club's requests in this case for a declaratory judgment, injunctive relief, and appointment of a special master, are **DENIED**. Plaintiffs' request for penalties against Defendants is **GRANTED IN THE AMOUNT OF \$14,251,302.**¹³¹

The Court will issue a separate Final Judgment.

SIGNED at Houston, Texas, on this 2 day of March, 2021.



DAVID HITTNER
United States District Judge

¹³¹ The Court's prior order granting an award of attorney's fees and costs to Plaintiffs and denying as to Defendants remains in effect. *See Revised Findings of Fact and Conclusions of Law*, Document No. 257, ¶ III.84, Part IV; *see also Order*, Document No. 292.